

# MMBV609LT1G

## Silicon Tuning Diode

This device is designed for FM tuning, general frequency control and tuning, or any top-of-the-line application requiring back-to-back diode configuration for minimum signal distortion and detuning. This device is supplied in the SOT-23 plastic package for high volume, pick and place assembly requirements.

### Features

- High Figure of Merit –  $Q = 450$  (Typ) @  $V_R = 3.0$  Vdc,  $f = 50$  MHz
- Guaranteed Capacitance Range
- Dual Diodes – Save Space and Reduce Cost
- Surface Mount Package
- Available in 8 mm Tape and Reel
- Monolithic Chip Provides Improved Matching
- Hyper Abrupt Junction Process Provides High Tuning Ratio
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

### MAXIMUM RATINGS (EACH DIODE)

| Rating                                                                                | Symbol    | Value       | Unit                       |
|---------------------------------------------------------------------------------------|-----------|-------------|----------------------------|
| Reverse Voltage                                                                       | $V_R$     | 20          | Vdc                        |
| Forward Current                                                                       | $I_F$     | 100         | mAdc                       |
| Total Power Dissipation @ $T_A = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$     | 225<br>1.8  | mW<br>mW/ $^\circ\text{C}$ |
| Junction Temperature                                                                  | $T_J$     | +125        | $^\circ\text{C}$           |
| Storage Temperature Range                                                             | $T_{stg}$ | -55 to +125 | $^\circ\text{C}$           |

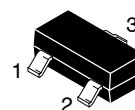
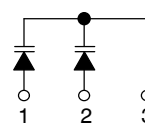
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.



**ON Semiconductor®**

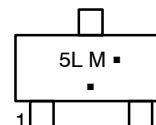
<http://onsemi.com>

### DUAL VOLTAGE VARIABLE CAPACITANCE DIODE



**SOT-23 (TO-236)  
CASE 318  
STYLE 9**

### MARKING DIAGRAM



5L = Specific Device Code

M = Date Code\*

■ = Pb-Free Package

(Note: Microdot may be in either location)

\*Date Code orientation and/or overbar may vary depending upon manufacturing location.

### ORDERING INFORMATION

| Device      | Package             | Shipping†           |
|-------------|---------------------|---------------------|
| MMBV609LT1G | SOT-23<br>(Pb-Free) | 3,000 / Tape & Reel |

† For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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## ELECTRICAL CHARACTERISTICS (EACH DIODE) ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| Characteristic                                                           | Symbol      | Min | Typ | Max | Unit |
|--------------------------------------------------------------------------|-------------|-----|-----|-----|------|
| Reverse Breakdown Voltage<br>( $I_R = 10 \mu\text{A}$ )                  | $V_{(BR)R}$ | 20  | –   | –   | Vdc  |
| Reverse Voltage Leakage Current<br>( $V_R = 15 \text{ Vdc}$ )            | $I_R$       | –   | –   | 10  | nAdc |
| Diode Capacitance<br>( $V_R = 3.0 \text{ Vdc}$ , $f = 1.0 \text{ MHz}$ ) | $C_T$       | 26  | –   | 32  | pF   |
| Capacitance Ratio C3/C8<br>( $f = 1.0 \text{ MHz}$ )                     | $C_R$       | 1.8 | –   | 2.4 | –    |
| Figure of Merit<br>( $V_R = 3.0 \text{ Vdc}$ , $f = 50 \text{ MHz}$ )    | Q           | 250 | 450 | –   | –    |

## TYPICAL CHARACTERISTICS

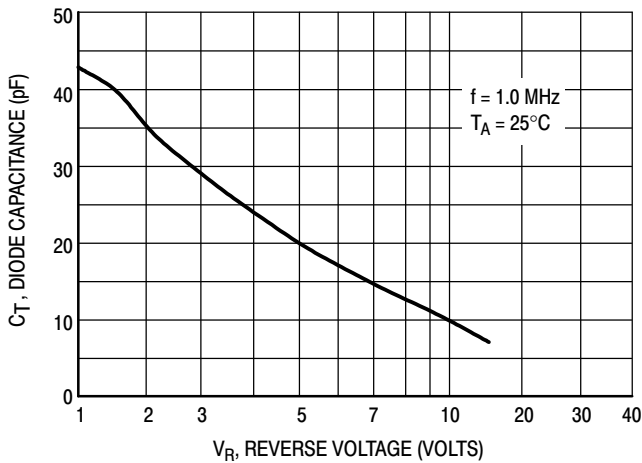


Figure 1. Diode Capacitance

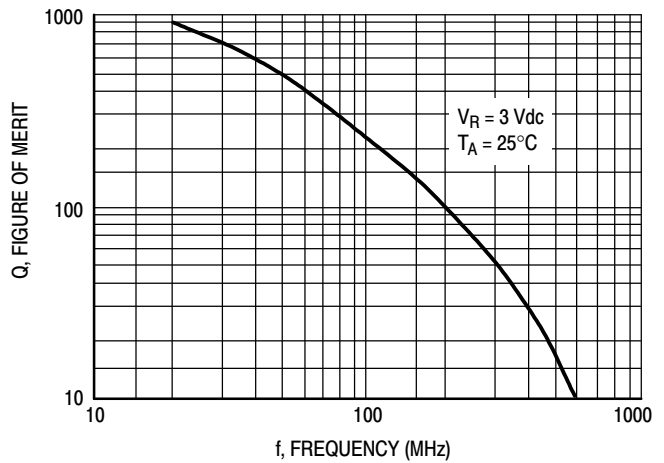


Figure 2. Figure of Merit

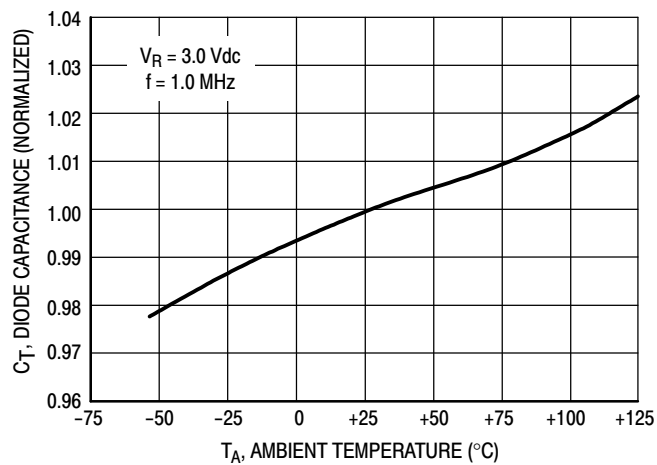


Figure 3. Diode Capacitance

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